UNITED STATES AIR FORCE ACADEMY, COLORADO

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The U.S. Air Force Academy
Center for
Educational Excellence

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***CEE Mission***

*To assist the Academy in achieving its educational outcomes by promoting the best possible practices in teaching and learning, research, and assessment.*

## *Course & Classroom Assessment*

## Examining Cadet End-of-Course Feedback I:
### The Importance of Question 24 "Prior to taking this class, I was interested in the content of this course:"

Dr. Robert Noyd, USAFA Director of Faculty Development

Each semester, you, along with instructors across the Academy received your end-of-course feedback from cadets concerning your instruction (Questions 1-12, 23) and the course(s) you taught (Questions 13-22). I think it is important to frame this feedback in terms of the student *perceptions of their experience* rather than their *evaluation* of you and your course.

One of the major factors that influence student's perceptions of their learning experience is their level of interest as measured with Question 24 on the feedback report. This question asks cadets to recall whether they were interested in the content of your course back on Lesson 1. Data from last fall show that for core courses, approximately 46% of cadets were interested, 18% said they were neutral and 36% said they were not interested in the content prior to taking the course. Cadet positive response (% yes) on Question 24 is positively correlated to ratings on Question 20 "the course as a whole was" ($r = 0.5$). How do you compare a course with a 15% yes response to this question with a one where the percentage is close to 100%?

One way to address the wide ranges of interest between courses or instructors is to place them into a table that uses results from Question 24 along with ratings of other global questions such as Question 20, or Question 22, "amount I learned in the course was," or Question 23, "the instructor's effectiveness in facilitating my learning in the course was." The numerical boundaries for interest or ratings will vary with the department. On this grid below I placed four hypothetical instructors or courses (A-D).

| Qt. 20/22/23 Ratings<br>Qt 24. Interest | Very Poor-Poor –Fair Ratings (1-3) | Fair –Good Ratings (3-4) | Good – Very Good Ratings (4-5) | Very Good-Excellent Ratings (5-6) |
|---|---|---|---|---|
| Very Low–Low Interest (<50%) | A | | | B |
| Low-Moderate Interest (51-69%) | | | | |
| Moderate-High Interest (70-85%) | | | | |
| High-Very High Interest (86-100%) | C | | | D |

There are many reasons why a course or instructor will fall into one of the slots on this grid. As an *initial* layer of analysis, instructor/course *A* has been unable to overcome the low interest of the cadets, where *B* has been able to generate higher ratings despite low intrinsic interest. In this case, instructor *B* probably has higher ratings for Question 1, "instructor's ability to stimulate my interest was." The *C* block is probably the least desired location on the grid. Students entered with a high level of interest and their ratings show a low satisfaction with their experience. Lastly, instructor/course in block *D* successfully parlayed high interest into satisfied students. The bottom line is to use the results of Question 24 to understand the motivational landscape in your department and to gain insight into cadet ratings.

With a renewed emphasis on core courses that generally have low interest, what can we do to stimulate cadet interest? See the companion article on p. 2 of this issue. I will discuss more data on cadet interest in the May issue of the *USAFA Educator*.

## *Sound Teaching Advice*

# Stimulating Cadet Interest

Lt Col Tom Schorsch, formerly of Dept. of Computer Science

*"A teacher who is attempting to teach without inspiring the pupil with a desire to learn is hammering cold iron." Horace Mann*

There is no single answer as to how best to stimulate your student's interest. There are many different approaches from many different perspectives. Don't overuse any particular one of them and don't overwhelm your students!

- ***Get your student's attention and foreshadow the course material or the lesson in some way.***

Without their attention you can't interest them. Bring something physical to the class that they can pass around and manipulate, tell a story, tell a joke, present them with a problem and ask them to solve it. What you do should be brief, related to the course material or current lesson, should stimulate thinking, and create a need in the students to learn more.

- ***Peak their curiosity; generate suspense; create uncertainty; build their anticipation***

The aforementioned all increase a student's interest. Students need to know there is more to learn in order to want to learn more. Ask open ended questions, ask them to analyze something or compare and contrast things, present them with an ethical dilemma, offer them an outrageous argument for or against something, ask them if they agree with a particular position, ask them to find arguments for an unpopular position, ask them if action X will cause result Y. As above, it should be brief, related to the course material or lesson, should stimulate thinking, and create a need in the students to learn more. Thinking is interesting, memorization is not.

- ***Emphasize the worth of the course material; make it relevant***

Show how the course material relates to later courses, to their eventual profession, to their well being, happiness, or fiscal success. Help students understand what you can do with the material, show how the content is important to them, let them know what new skills or abilities they will learn. Talk about success stories in your field and where failures occurred because of a lack of knowledge, talk about the founders of your field and significant contributors to your field. Emphasize real life problems and solutions and the course material's impact on society.

- ***Enable students to be creative.***

Allow students the freedom to explore, make decisions, personalize their work, showcase their work to others.

- ***Tie the course material to the student's interests***

Relate the course material to popular culture, sports, or current events. Show students how the material relates to their daily activities and lives, society, and the world in general. Help students establish a personal relationship with the material. "Interest" will flow from things that are interesting to them to things that are (initially) not interesting through the connection you help them make.

- ***Enable students to create a finished product.***

Have them produce something that they can take away from the class, which they'd like to keep after the class is over, and show to their friends and family, etc.

- ***Model interest in learning.***

Show students that you learn as well, that you have interests and pursue them and that you struggle and achieve. Interest is contagious in that one person can "catch it" from another. Have students share their interests related to the material.

- ***Actively engage the students.***

Use active learning techniques. Have students do things rather than have them see you do things or read about others doing things.

- ***Remove barriers to their interest.***

Offer encouragement both as a group and individually. Reduce their anxiety about the material and their performance. Tell them how they can succeed and what they need to do to succeed. Pick them up and help them on their way when they fail, let them know that failure is sometimes expected and OK as long as they learn from it. Demonstrate enthusiasm and interest yourself.

- ***Review their progress.***

Let them know what they've done so far, how much they've learned, how much they've progressed, and how they've grown in confidence and ability. Give them a sense of accomplishment. Help them realize the enjoyment they've had in your class and help them have pride in their accomplishments. Students appreciate it when you review their individual performance with them—you show interest in them and they show interest in you and your course.

- ***Reward your student's effort and achievements.***

Reward them wit h points, recognition, or praise. A pat on the back, a "good job,"or a "thanks for the effort you put into this" does wonders.

Additional links on stimulating student interest:

http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/teachtip.htm#motivating

www.cals.ncsu.edu:8050/agexed/leap/aee535/motivating_students.ppt

http://www.cals.ncsu.edu/agexed/aee735/ppt3/index.htm

## *Cadet Research*

## Cadet Summer Research Program

Capt Scott Carrell, Department of Economics & Geography

The Cadet Summer Research Program (CSRP) is the Dean of Faculty's largest cadet summer program. Rising first class cadets who participate in the program typically spend six weeks during the summer working internships at various Air Force, DoD, or Civilian organizations. Requirements for participation in the CSRP are stringent, with most cadets having over a 3.0 GPA and 2.8 MPA. In 2004, 182 cadets participated at over 84 locations world-wide.

This year promises to have one of the largest contingents of cadets participating with over 215 cadets nominated by their respective academic departments.

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## *Instructional Development*

## Understanding an Outcomes-based Curriculum II: The role of behavioral objectives

Mr. Curt Hughes, Instructional Designer,
The Center for Educational Excellence

In the last issue of the *USAFA Educator*, I discussed the role of institutional-level outcomes as an over-arching curriculum planning tool. In this issue I would like to show how objectives, written to support those broader outcomes, can be used to further define the behaviors that we are looking for within courses, major programs or even individual lessons.

Once our specific objectives have been defined, we then need additional detail about the specific *behavioral components* that make up each objective. For example, what specific behaviors do we want cadets to exhibit in writing an effective report? Suppose we envision three possible behavioral components: clarity of expression, appropriate use of evidence, and writing at a level that is appropriate for the audience. By identifying these components, we've clarified what it means for a cadet to write a good report. These components then become the focus of our classroom teaching and assessment of student performance.

In summary, effective curriculum design requires that we be first explicit about what we want our students to be able to do as a result of taking our curriculum. As you think about your own teaching, I would encourage you to identify what the desired outcomes, objectives, and components are for your own class. By using this outcome-based curriculum, you can become a better, more intentional, instructor.

## *Officer Development in the Classroom*

## The Leadership Growth Model & Educational Practice

Dr. Rolf Enger, Director of Education

In this and future issues of *The Educator*, we hope to include periodic articles related to the Academy's Officer Development System (ODS). In this first installment, we feature the key ODS developmental strategy known as the Leadership Growth Model (LGM). The ODS pamphlet asserts that the LGM "is universally applicable throughout all phases of the Academy experience across the entire education and training spectrum—in the classroom, in the squadron, and on the athletic field." As an Academy educator, are you employing this powerful tool as you design and implement each lesson in your course?

The Leadership Growth Model is based upon best practices in higher education and more than two decades of research on teaching and learning. Although we often teach cadets to use the LGM as a strategy for counseling and mentoring, it's also an excellent outline for an effective lesson plan. You'll recall that it has four stages:

1. Expectations and Inspiration
2. Instruction (coupled with coaching and mentoring)
3. Feedback
4. Reflection

An instructor employing the LGM in the classroom might begin class with an overview of the lesson and an inspiring anecdote that motivates cadets to look forward to this learning opportunity. A 15 to 20 minute interactive lecture might follow during which the instructor teaches the new material. Then, under the instructor's watchful eye, the cadets could be given an exercise in which they are asked to apply what the instructor has taught. During this time, the instructor coaches cadets who are struggling, provides additional instruction as necessary, provides feedback to the cadets, and personally gains valuable feedback about how well the cadets have learned the new material. In the closing minutes of the class period, the instructor and cadets reflect on the learning experience and establish expectations for their out-of-class study and for the next class period.

The next time you sit down to lesson plan, I encourage you to employ the LGM framework. It's a powerful research-based tool that can help each of us improve our effectiveness as educators. In addition, it's the Academy's official strategy for developing our cadets into the outstanding Air Force second lieutenants that our nation will need to meet the challenges of the 21st century.

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*"Self-assessment is integral to learning. Students learn better when they know precisely what they have achieved, how they have achieved it, why they did what they did, and what they can do to improve it."* (Alverno College 1994)

## *Applying Research to the Classroom*

# Defying the Cadet "Brain Dump"
## Teaching for Long-term Retention & Transfer

Dr. Robert Noyd, USAFA Director of Faculty Development

*"Classroom instruction is intended to provide learners with information and skills that they will need sometime in the future when the instructor is not present."*

When faced with a content-rich course where they learn a large amount of information, cadets have been known to say that they "dump" the information after one GR so they can move on to the next round of learning. The idea that our students plan to memorize information for a very short period of time indicates that they may see little relevance or meaning in the information or that the amount of information is overwhelming. How can we assist students to remember the concepts that we teach them for the long-term and then apply them to new situations in the future? In their article in the July/August 2003 issue of *Change* magazine, Halpern and Hakel outline a few basic principles, based on laboratory-based research, to enhance long-term retention and transfer of learning. Here are a few of those principles:

- **Practice --** Information that is frequently retrieved becomes more retrievable. This follows with the fact that spaced retrieval practice is better than massed practice.
- **Anchor instruction --** Let students experience their changes in understanding as they view a single key problem or situation from several different angles – For example, show students how to solve a problem a number of different ways.
- **Reformat information --** Require learners to take information presented in one format (i.e. verbal) and re-represent it into another format (visual). For example, have students create concept maps of their reading or require students to write about how they solved a problem in math and engineering classes.
- **Prior knowledge and experience --** Assess learner knowledge and understanding at the start of every instructional encounter.
- **Less is more** -- An emphasis on in-depth understanding of basic principles often is a better instructional design than more encyclopedic coverage of a broad range of topics.
- **What students *do* matters most** – Our most important role as teachers is to direct learning activities in ways that maximize long-term retention and transfer.

Reference:
Halpern, D.F. and Hakel, M.D. 2003. Applying the science of learning to the university and beyond. Change. July/August 2003. p. 37-41.

*"The acquisition of factual content does not guarantee that students will develop organized knowledge structures that guide subsequent thinking." -- John Bransford*

## *Educational Technology*

# Essay Testing Using the Computer

Ms. Carolyn Dull, Director of Technology Labs
Tip provided by Lt Col John Sacks, Department of Management

Do you have problems reading your students' handwriting? According to recent studies, college students compose better and write about 20% more when using a keyboard instead of pen and paper. So you have an essay or short answer test you are writing for your students, did you know in Microsoft Word 2003 you can create a secure electronic version of the test?

Here's how to make the test document:

1. Create the test as you would in Word 2003.
2. Add a text box wherever the students will write text, their name, etc.
3. Add a text box after each question, making sure the box is the appropriate size to accommodate answers.
   a. Adding text boxes – click on View >> Toolbars >>Drawing.
   b. Click on the textbox icon 
   c. Then move and resize the text box.
4. When the test is complete, you need to protect the document.
5. Click on Tools, Protect Document.
6. From the Protect Document task pane select Option 2. Editing restrictions and allow… No Changes (Read Only).
7. In the Exceptions section select each Textbox and allow everyone to edit.
8. In step 3. Start enforcement, type a password you will remember
9. Next password-protect the document so it cannot be open until the password is given at the beginning of the test.
10. Select tools >> Options, click on the Security tab, and enter a password in the first textbox "Password to open"
11. Your students will need this password to open the test.

Protecting the opening of the document allows document distribution and then everyone opens and starts working at the same time.

Protecting the document from modification allows the students to type their answers in the textbox making their answers legible and allowing them to organize their thoughts. The danger is that students will want to "fill the box" and they can lose track of time and not complete the test.

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***From the National Research Council book "How People Learn"***

*To develop competence, students must:*

- *Have a deep foundation of factual knowledge*
- *Understand facts and ideas in the context of a conceptual framework*
- *Organize knowledge in ways that facilitate retrieval and application*

*Academic Assessment*

## Who is Performing in Your Classroom?

Dr. Steve Jones, USAFA Director of Academic Assessment

"All the world's a stage
And all the men and women merely players"
– William Shakespeare, from *As You Like It*

Shakespeare's famous lines continue by explaining that we all have many entrances and exits on the stage of life. Furthermore, over the course of our lives, we all play many roles ranging from child, to lover, to soldier.

As I re-read Shakespeare's lines, I can't help but consider the many roles we are asked to play in our own lives – in fact, we often take on several roles within a given day. Sometimes (e.g., in a small group meeting in my department), we may be one of the principal actors on the stage. Other times (e.g., at Dean's Call), our roles may shrink into the background, as others take center stage.

In addition to their literary and philosophical qualities, Shakespeare's lines also have intriguing implications for our teaching. Allow me to explain. When I first began teaching, I was really apprehensive about how I would appear to my students. I was plagued with questions like "Am I smart enough?" "Am I organized enough?" and "Can I communicate my ideas effectively?" To quell my doubts, I responded with detailed preparation. I did lots of background reading before each class. I wrote out detailed notes regarding how my class would proceed. I prepared the best multimedia presentations I could. In short, I was determined to "take the stage" in my class, ready and able to give the very best performance I knew how.

Over time, I've come to realize that my approach – while very well-intentioned – was somewhat misguided. The reason is that I really was putting on a performance. I was putting myself at the center of the stage, relegating my students to the audience.

The problem, of course, is that the classes I teach are not about me – they don't exist so that I can look good. They exist so that students can learn. And it is unlikely that more learning will occur if I am on stage, while students sit passively in the audience. Learning happens best when students are actively engaged. Learning occurs when students have the chance to practice new skills and to wrestle with new ideas. Learning occurs when students are the ones doing the performing, rather than the instructor**.**

I still work hard to prepare for class, and I still think it is important to be smart, organized, and a clear communicator. However, my motives for achieving these qualities are very different than they used to be. I no longer consider myself to be the primary performer in the classroom drama. I may be a "director" or a "producer," but it is my students who really need to take center stage.

*Faculty Contributions*

## There's Another Way

Capt Randy Ludwig, Department of Foreign Languages

In the words of renowned educator and author Parker Palmer, "good teaching cannot be reduced to technique" (Palmer, 1998: 10). As educators, we are constantly surrounded by numerous teaching methods and techniques that are available to guide us. Some of them are more effective than others, and some just depend on the person and the situation. The reality is that most of these techniques can be successful if used by the right person, at the right time, in the right environment. In addition, many of the most successful ones seem to be based on solid foundations that are actually more important than the specific technique itself. For instance, the techniques I find most useful in the classroom really come down to creating an environment of respect and genuine concern for the students. When you acknowledge their unique backgrounds, strengths, and experiences, whatever technique you use will be more effective.

So with all the options available, how do we determine which techniques will work best for us? Palmer says "we teach who we are" (Palmer, 1998: 1). This is a very powerful and important statement. Techniques can be a good place to start for people who feel they have no place to start. But a better place to start is from within. We need to be true to ourselves as teachers, and find out what really works for us on a personal level, rather than just robotically following someone else's techniques because they seem to work for them. For some of us, what works well is basing a class on meaningful student-centered activities involving critical thinking. For others, an interactive lecture-based approach works best. Regardless, it is up to each of us to figure out the best approach, based on our personal strengths and the needs and strengths of our students. Palmer emphasizes that "technique is what teachers use until the real teacher arrives" (Palmer, 1998: 5). We each need to discover who this "real teacher" is. This will give us the power to pick and choose the techniques that fit us, and not lose so much energy trying to change ourselves just to fit some technique.

Acknowledging our differences as teachers and turning them into strengths increases creativity and helps to keep the classroom fun and alive. For instance, last year three of our instructors used three very different approaches to teach the various forms of the past tense in Spanish. One instructor used a popular song in Spanish to expose the students to the new structure. Another had students draw pictures of something they had done the day before and work in groups to describe these things to the class. As for me, I brought my guitar into the classroom and the students and I created a story together and put it to music. These three different approaches were each effective in accomplishing the same objective. Although I was course director for that course, it would have been unrealistic — and much less effective — for me to expect everyone to do it

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way. When we personalize our teaching we make it our own, and we come alive as instructors. And students get more excited about concepts that we seem passionate about.

It is important to expose ourselves to new information that can help us improve as educators, but we should be cautious about how we use this information. We need to make these new methods our own if we want to be successful. This may mean modifying them slightly, or getting rid of the parts that don't seem to fit our individual teaching styles. No matter how many classes we visit or how many books we read, the one technique we can always rely on is being our true selves. This should be the starting point, and we can build from there.

Reference:
Palmer, Parker J. 1998. *The Courage to Teach*. San Francisco: Jossey-Bass.

Special thanks to Dr. Salah Hammoud, Dr. Robert Noyd, and Diane Knox for their ideas, comments, & suggestions.

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*"We test what we value, and in time,*
*our students come to value what we test."*
*Sheila Tobias*

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## *Writing Across the Curriculum*

## Assigning and Assessing Writing in the Disciplines

Dr. Anita Gandolfo, Professor of English and Director of Faculty Development, U.S. Military Academy, West Point, NY

In a recent article, Peter Elbow points out that academics tend to prioritize reading over writing while learning is more apt to occur with the latter. He attributes the confusion to a basic misconception of what learning actually entails. That is, most people think of learning as input—listening and reading, not talking and writing. Even when writing is assigned, it often serves reading. That is, the student is writing in response to readings, whether summarizing or analyzing.

As Elbow explains, learning is less a matter of input than the making of meaning. The reader who is a learner is extracting information from a text and integrating that information into patterns of meaning for him or her self. The traditional "paper" assignment was an opportunity for the student to demonstrate learning in a course. It functioned as both a model of the student's learning and a method for deepening learning through the exploration and/or research implicit in the assignment.

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*A recent West Point study on cadet sleep patterns found that cadets average 5 hours of sleep per night on school nights and 6 hours 30 minutes on weekends* (Miller & Shattuck 2004).

## *Faculty Research*

## Measuring the Impact of Research

Dr. John S. Wilkes, Department of Chemistry
Ms. Marie L. Nelson, McDermott Library

How can you tell if a research program or a particular discovery has had much of an impact? Sometimes it is easy to tell, particularly in the engineering disciplines when a researcher solves an urgent problem, then sees the results installed as new or improved hardware. However, very often it is difficult to determine whether a basic research project really has a durable effect in a scientific discipline. Fortunately a tool called "citation analysis" can at least establish whether or not other researchers in the field think that your research is worthwhile.

The USAFA McDermott Library subscribes to the Thomson ISI Web of Science's *Science Citation Index Expanded*, with purchased coverage from 1994 to the present. (Coverage back to 1945 is available from the publisher.) It provides cover-to-cover indexing of over 6,100 selective, peer-reviewed scientific journals, with weekly updates, and indexes all authors of an article. In addition to searching this mass of literature in conventional ways, such as by keyword or author, the Web of Science is unique, in that it allows one to perform a "Cited Reference Search." This enables one to navigate both forward and backward in time. Researchers use it to determine who has subsequently cited an article they themselves have written, or which is of critical research interest to them. Or one can use the "Related Research" links to locate additional articles that ISI's algorithms deem to be relevant. The publisher claims that their product may be used to "…rank institutions, individuals, nations, and journals within disciplines for the purpose of evaluating scientific research and providing performance measures." This is actually very similar to the way Google indexes and ranks web sites on the internet. For the individual researcher or research group, the information about connections their research has with others is highly significant. One often finds that the results of one's research project are being used in applications one would never have anticipated. Or, sometimes, one discovers that nobody seems to care at all. That's just a fact of life in the basic research business.

Let's take a look at a few examples. We wanted to answer the question, "Has the funding of chemistry research at USAFA had any substantial impact on the field?" This is exactly the kind of question citation analysis can answer. The number of times cited is an indicator of impact or interest by others, so the paper being analyzed must often be old enough to give other researchers a chance to realize its importance (or not). We chose to analyze two papers from 1992 and 1993; "Air and Water Stable 1-Ethyl-3-methylimidazolium Based Ionic Liquids" in *Chemical Communications*, and "Manifestations of Noncovalent Interactions in the Solid State" in *Supramolecular Chemistry*. The research was done at USAFA under AFOSR sponsorship. The bar graph on the following page depicts the

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subsequently cited. Clearly the 1992 paper (labeled ChemComm) has had a much greater impact than the 1993 paper (labeled SupraChem). Interestingly, the importance of the 1992 work did not become apparent until about 1999, when the number of citations each year started increasing exponentially. The statistics for average number of citations to 1992 articles in chemistry, as compiled by ISI, is 13.26. Our article was cited 63 times in just the last year. On the other hand, the 1993 SupraChem paper had a much more minor impact—just 6 citations over the last eleven years. The enduring lesson of this type of analysis is that the scientific community votes on the impact of research by how frequently they cite a paper describing that research.

One can also use citation analysis to glean details about how the research is being used by others, or to locate prominent researchers in the field. This exercise demonstrated that the new materials described in our 1992 paper have since been used in batteries, reaction solvents, microelectric thrusters, fuel desulfurizers, ethanol sensors, lubricants, and embalming fluids. We had actually designed the materials described in the 1992 article for use as battery electrolytes, but obviously our research proved to have uses we, and our sponsor, had not considered.

*Science Citation Index Expanded* has proven to be of high interest at USAFA, particularly to the Biology, Chemistry, Physics and Math Departments. How can you utilize this fantastic database yourself? The Web of Science *Science Citation Index Expanded* can be accessed at http://isi6.isiknowledge.com/portal.cgi?DestApp=WOS&Func=Frame, or via the "Searchable Databases" on the library's home page. Once in, choose the "Cited Reference Search" button, and search for your chosen paper, such as one you have written. After finding that chosen article, the "Times Cited" link leads you to a listing of those subsequent articles which cite that paper. (All citations are accounted for in the total number, but only the citations from 1994 to present may be viewed in detail, due to our subscription limitations. For coverage of earlier years, the Library has *Science Citation Index* available on CD-ROM for 1989-1993, but with one-third less journal coverage. Or, if researching a chemistry topic, one might also try *SciFinder Scholar*, which is the Chemical Abstracts database. It can be made available to USAFA researchers upon request.)

A new WOS *Science Citation Index Expanded* feature is "Create Citation Alert," which will send you a message whenever there is a new occurrence of someone citing your chosen article. You can also "Save" your research strategy, and request weekly updates providing you with new articles that meet your requirements. For assistance, there are "Help" options available, as well as a "Tutorial" button at the bottom of the introductory page, and an "Information for New Users" link at the top. Marie Nelson, Reference Librarian, 333-4406, will be happy to assist you with any questions you may have.

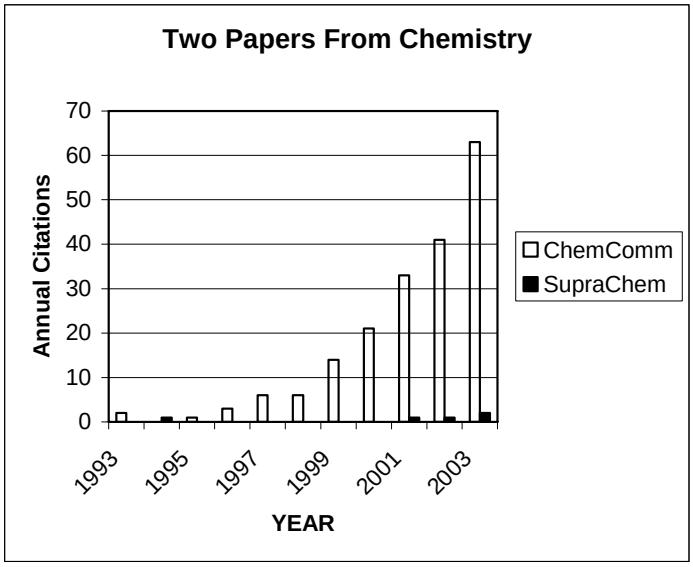


Fig 1. Citation frequency for two 1992 and 1993 articles describing some chemistry research done at USAFA and sponsored by AFOSR.

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## Assigning and Assessing Writing in the Disciplines

Thus, a course "paper" is not an insignificant event. It should not be viewed by either the instructor or the students as simply one more requirement to be met in a course. Since writing is a process of slowly constructing meaning, ideally in relation to feedback from peers, a course writing assignment should be structured to promote that process.

**Implications for Teaching**

If the paper should encourage the construction of knowledge by the student, the assignment should be neither too prescriptive nor too open-ended. It should have a specific learning objective—that is, it should require the student to engage in a cognitive process suitable to the level of the student within the discipline.

If the writing assignment requires some thoughtful analysis or synthesis, the average undergraduate may fail to recognize the time required and simply see the assignment as another task to be completed as quickly as possible. One solution is to require a preliminary draft that is submitted sufficiently in advance of the final submission to allow for the cadet's revision.

If a draft is required, however, the instructor must avoid providing too much guidance so that he or she is, in effect, writing the paper for the student. This is a case where electronic submission is helpful, since it helps the instructor

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### Assigning and Assessing Writing in the Disciplines

resist annotating the text with detailed comments and helps the instructor rely on a specific message to the student about the paper. For example:

"*You've identified an important issue, but you have simply described it for the reader. The assignment asks you to analyze it in terms of its relevance and potential impact. That analysis is essential to a successful paper."*

*"Although you appear to have two paragraphs in support of your thesis, both paragraphs actually repeat the same basic evidence. You need to review this and provide a second area of support for your thesis."*

*"I realize that this is only a draft, and you may already be aware of the problem, but, if not, you should know that there are significant problems with this essay in terms of the mechanics of writing standard American English. You have many errors in punctuation and word usage, errors that must be corrected before you submit the final copy."*

This final "comment" leads to the major problem that college professors complain about in student writing in the disciplines. They argue that the writing is poor, yet they are not "English teachers" and feel that they should not have to correct errors or explain the errors to students.

**On [lack of] Correctness**

These professors are correct. Their response to student writing should be focused on the first two comments noted above—that is, how well did the student do what was asked in the assignment in terms of substance (content) and organization (logical development and evidence). In order to deal with the issue of correctness, it's important to note one of the unexpected consequences of technology relative to student writing. The advent of word processing, a boon to the experienced writer, has created some less desirable behaviors in student writers. Convinced that the "spell check" and "grammar checker" will eliminate surface errors, student writers tend to believe that the computer will enable them to produce writing more quickly with less effort.

Thus, there is a tendency to underestimate the time required for a writing assignment and to assume that correctness will be taken care of by the machine. Feedback on a first draft may lessen the first problem, but the latter issue usually requires more draconian measures.

If you notice that there is a problem with correctness in a student's essay, this usually means that the problem has risen to a level that is unacceptable in college-level writing. The standard measure has always been whether or not the level of error distracts the reader. In this environment, that level of error is almost always due to a failure to proofread sufficiently (or at all) because of the misguided notion that the computer checks will take care of such problems.

One solution for the instructor who encounters student writing that calls attention to itself because of the lack of correctness is to simply return it to the student and advise him or her that "I can't evaluate this until I can read it, and it must be written with more attention to the conventions of writing American English. Return this to me by [establish specific time] in a form that is readable."

This approach recognizes that with the word processor we are not asking the student to re-type a long paper. Corrections can be easily made, and in most cases, the student will notice the errors with some attention to proofreading. In no case should the instructor make the corrections *for* the student because this is enabling behavior that allows students to believe that it's acceptable to submit poorly written work.

Another solution to problems with correctness is to evaluate the paper in terms of substance, organization, and style and return it to the student with a note like the following: "In response to the assignment, this paper would be a "B+" if it were written at an acceptable level of correctness. You have until [specify time] to provide a corrected version of this paper to receive that grade."

If the problem is not simply carelessness, but the student has significant problems producing correct writing, there are enough supports within the Academy for the cadet to remedy his or her deficiencies, something that it's important for that individual to learn how to do. We do students no favors by ignoring their problems in writing, but we often provide them with no incentive to remedy their problems if we assume responsibility for "correcting" their errors or we tolerate their careless errors and simply complain about poor writing.

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